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ABSTRACT

The purpose of this study was to investigate the relationships between graduate education in educational psychology and instructional design programs in view of the common interest of the two disciplines in certain content areas. Program administrators (chairpersons) of instructional design and technology programs at 22 institutions with doctoral programs in both areas were surveyed (N=44). A questionnaire was used to collect data on how frequently graduate students in one of the disciplines study topics in the other discipline, and the frequency of the study of such topics at three points in time: currently studied (1983-84); studied 5 years ago (1978-79); and projected to be studied 5 years in the future (1988-89). Information was also solicited about the contact between faculty in instructional design and educational psychology and whether these interactions were expected to increase, decrease, or remain constant over the next 5 years. An overall response rate of 64.3% was obtained. Findings indicate that while the two disciplines are moving closer to each other, this is happening in an uneven fashion with educational psychology programs incorporating more topics from instructional design programs than vice versa. Contact between faculty in the two areas has increased or remained constant; however, relatively few faculty in either program engage in collaborative research or publication with faculty from the other discipline. Suggestions for future research include measure of student exposure to a given area, a replication of this study during the 1988-89 academic year, and use of the Delphi trend forecasting technique. A list of references and two data tables are provided. (JB)

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LONGITUDINAL CURRICULUM CHANGES IN INSTRUCTIONAL DESIGN AND EDUCATIONAL PSYCHOLOGY DOCTORAL PROGRAMS

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INTRODUCTION

Several writers have discussed the need for more research about instructional design, and some have identified areas particularly in need of research. One general area designated as being in need of further research is the training and education of instructional designers (Durzo, Diamond, & Doughty, 1979; Silber, 1981); several specific recommendations for modifying graduate education in instructional design have been proposed. At the same time, others have proposed changes in graduate education in educational psychology. One specific proposal which has been made is the integration of coursework in instructional design into graduate programs in educational psychology (Dick, 1978; Scandura et al., 1978). Thus, it appears that the status of graduate education in both instructional design and educational psychology is in a dynamic phase; a study examining changes in graduate education in the two fields would help to clarify how the two disciplines are changing relative to each other.

The usefulness and importance of individual components of graduate education in instructional design have been discussed. For example, guided field experience for the instructional design student has been proposed to be an essential component of an instructional design curriculum (Bass & Duncan, 1981-82). Skills in self-evaluation of job performance are necessary for professionals delivering services, and the need for better training in self-evaluation skills has been discussed (Eldridge, 1982). More broadly, the general development of higher cognitive skills as exemplified by Piaget's stages of concrete operations and formal operations has been proposed as the goal of instructional design education (Silber, 1981). Thus, proposed components of an instructional design curriculum range from very specific to fairly broad and comprehensive.

Similarly, several persons have examined the role of particular components of graduate education in educational psychology. Specific content areas such as human development, learning, motivation, and research methodology and statistics are traditional components of graduate education in educational psychology (Anastasi, 1979; Sandura et al., 1978). However, other areas such as instructional design and program evaluation have been suggested as topics which should be incorporated into the educational psychology graduate curriculum (Albino, 1979; Dick, 1978; Scandura et al., 1978).

To date, however, the relationship which exists between instructional design programs and educational psychology programs at institutions which have doctoral programs in both areas has not been examined. This study was intended to clarify specific aspects of that relationship.

The primary purpose of this study was to investigate the relationships which exist between graduate education in educational psychology and instructional design. First, the study assessed the extent to which instructional design topics are being studied in

doctoral programs in educational psychology; second, the study also assessed the extent to which doctoral students in instructional design, media, and technology study educational psychology topics in their curriculum at institutions which have doctoral programs in both areas. The study also determined if specific curriculum topics in the two disciplines had changed over time, using five years ago (1978-79 school year), currently (1983-84 school year), and projections for five years in the future (1988-89) as the points in time. In this fashion, it was possible to determine the extent to which the two programs interact in terms of students studying topics in the other area.

Programs which were examined in this study are educational psychology doctoral programs and instructional design doctoral programs at schools which have both programs in their graduate curriculum. With respect to educational psychology programs, graduate programs which offer the doctorate in either "educational psychology" or "general educational psychology" were included in this study (American Psychological Association, 1981). Instructional design, media, and technology programs were identified from a listing found in the Educational Media Yearbook (1983); from this point, these programs will be referred to as instructional design programs.

Two major questions about the interaction of graduate education in instructional design and educational psychology were answered by this study. First, what differences exist between educational psychology and instructional design programs in the number of doctoral students studying specific curriculum topics at each of the three points in time which were examined? Second, can any trend in directionality be noted over time; that is, has one area shifted more in the direction of the other area? Four measures of interrelationship between the two areas, curriculum topics studied by doctoral students, recent student dissertation research, faculty dissertation research, and contact between faculty in the two programs were used to answer these questions. This paper will focus on findings from curriculum topics studied and faculty contacts; other data from this study can be found elsewhere (House, 1985).

Additionally, the study provided a descriptive characterization for each type of graduate program. Information including how frequently specific curriculum topics were studied, recent student dissertation directions, faculty dissertations, and open-ended comments by responding chairpersons were used to provide a brief characterization of instructional design and educational psychology graduate programs. These findings are also summarized elsewhere (House, 1985).

The results of this study may be of interest to several groups. First, higher-level administrators such as deans of colleges of education are provided with a more clear representation of the relationship between doctoral programs in educational psychology and instructional design. Second, administrators of doctoral programs in instructional design and educational psychology can be made aware of the degree of interrelationship between the two areas, and how that relationship is changing over time. Third, persons responsible for

hiring educational psychologists and/or instructional designers are provided with a more clear characterization of the types of experiences which graduates of these programs have been exposed to.

RELATED LITERATURE

Characteristics of Instructional Design Graduate Programs

Within the structure of an ideal graduate program in instructional design, several specific areas of training would be represented and graduates would have acquired the ability to exhibit certain professional competencies. Among the specific areas to be included in an ideal program would be educational technology and media, instructional psychology, instructional development, and statistics and research methodology (Patridge & Tennyson, 1978-79). Additionally, it has been proposed that graduate students take courses outside of instructional development in order to observe how other disciplines view the learning process and conduct research (Bratton, 1981). Also, considerable discussion has focused upon professional competencies which graduates of instructional development programs should be able to perform (Task Force on ID Certification, 1981). Each of these areas will be examined in more detail.

A major component of the traditional doctoral degree curriculum is research (Spurr, 1970). In their assessment of competencies which would be included in an ideal program, Patridge and Tennyson (1978-79) found that research methodology would be a highly emphasized area; however, it has been noted that graduate students in instructional design are often not adequately trained to conduct research (Reiser, 1982). Consequently, some graduate programs are starting to provide practice experiences in research in the form of research practicum courses (Reiser, 1982).

Another integral portion of an instructional development curriculum is educational media and technology. There are two generally accepted definitions for educational technology (Romiszowski, 1981). The first definition refers to educational technology as the use of hardware or equipment in the educational process while the second definition focuses on the process of the scientific development of learning experiences through a knowledge of the psychology of learning. In their study of components of graduate programs in instructional design, Patridge and Tennyson (1978-79) surveyed course offerings in media such as visuals, computers, and audio and it would appear that the authors were employing Romiszowski's (1981) first definition of educational technology. Also, in his proposals to incorporate instructional design topics into the educational psychology curriculum, Dick (1978) discusses areas such as media selection and media production, indicating that he also employs a definition of educational technology as being primarily hardware or equipment.

Instructional psychology has also been identified as a major area of preparation in an instructional design graduate program (Patridge &

Tennyson, 1978-79). Instructional psychology is the application of findings from experimental learning psychology to various instructional settings at all levels of education (Glaser, 1982). The field of learning psychology differs from instructional psychology in that the experimental study of learning is not necessarily approached with the ultimate aim of being applied to instructional practices (Bower & Hilgard, 1981); conversely, instructional psychology is conducted with the goal of improving instructional methods (Glaser).

A final consideration of graduate education in instructional design is the development of professional competencies. A set of 16 basic competencies has been proposed (Task Force on ID Certification, 1981). This particular list focuses upon professional activities and behaviors to be correctly accomplished by instructional developers. Other competencies have been proposed, including appropriate interpersonal and consulting skills (Bratton, 1979-80) and the ability to interview clients in order to quickly learn basic knowledge in unfamiliar content areas (Bratton, 1981). Thus, a variety of behavioral and interpersonal skills are expected of the professional instructional developer.

One method by which characteristics of present ID graduate programs can be evaluated is by an assessment of the content of those programs. There has been at least one study which has assessed similarities and differences between various graduate programs in instructional development (Patridge & Tennyson, 1978-79). This project surveyed nine graduate programs in instructional design, documenting program goals and characteristics, student characteristics, and faculty preparation. Similarities and differences between masters and doctoral programs were examined. Additionally, representatives of each graduate program rated the order of emphasis placed upon a variety of student competencies for their programs; similar ratings were solicited for what order the competencies would be ranked in an ideal graduate program in instructional design.

A major difference found between masters and doctoral programs was program goals. Most programs placed an emphasis on the teaching of instructional development and/or media production for masters students, while emphasizing a more traditional study of research methodology and an area of specialization in doctoral programs (Patridge & Tennyson). With respect to faculty preparation, Patridge and Tennyson found that most faculty were trained in one of three areas (instructional development, instructional psychology, and visual technology). Faculty were considerably more often trained in visuals than any other media. As well, more faculty were trained in measurement and evaluation than media (with the exception of visuals).

Patridge and Tennyson found that many of the courses taught in graduate programs in instructional development fall within five major areas: instructional psychology, measurement and evaluation, instructional development, educational technology, and management and administration. In their discussion of the redesign of the Syracuse University instructional development graduate program, Doughty and Durzo (1981) also show that many of the courses in the curriculum fall

into the categories of instructional development, media, research and evaluation, and instructional psychology/learning. Additionally, they also report that field experiences such as internships and practicums are part of the curriculum. Patridge and Tennyson report that five of the nine programs surveyed in their study offered internship experiences on a credit basis for graduate students in instructional development.

Patridge and Tennyson noted a wide variation across institutions in the number of courses offered, with courses in instructional psychology and visual technology offered considerably less often than courses in instructional development. With respect to educational media, courses in visuals were most often taught, followed by computer courses second; however, there was considerable variation found across institutions in the number of courses taught in specific areas. Each program surveyed by Patridge and Tennyson also required courses outside the formal boundaries of their own program; courses in research methodology and statistics were most often found outside the instructional development graduate program. Finally, Patridge and Tennyson also found that there was a considerable disparity between the emphasis placed on research competencies and the number of research methods courses offered within the program. More courses in research methodology and statistics were required than were actually taught in instructional development graduate programs.

In another study, Silber (1982) reported findings similar to those of Patridge and Tennyson. Silber evaluated several graduate programs in instructional development which were divisible into three classifications: A) MA programs, B) residential PhD programs, and C) commuter PhD programs. It was found that MA programs placed an emphasis on practical skills for job performance such as media production, project management, and evaluation skills, findings similar to those of Patridge and Tennyson. In fact, this study found that MA programs and residential PhD programs spent the same amount of time on design courses; the extra courses in the PhD program were represented by research and theory courses. Also, Silber found a difference in emphasis between commuter and residential PhD programs; residential PhD programs emphasized more research and theory coursework, while commuter PhD programs emphasized practical design courses. Lastly, residential PhD programs spent the most time on developing research and theory competencies in fields other than instructional development (such as motivation, perception, developmental psychology, learning psychology, and cybernetics), followed by commuter PhD programs next and MA programs last. Residential PhD programs spent approximately twice the amount of time on these areas as did MA programs.

Characteristics of Educational Psychology Graduate Programs

A recent examination of various aspects of the current status of educational psychology was conducted by Scandura et al. (1978). This study detailed major problem areas and disciplinary components of educational psychology, curriculum trends in educational psychology

training programs, and promising advances in educational psychology. In an effort to clarify the major applied activities in which educational psychologists conduct research, four major topics were identified by Scandura et al.; these four major areas are: A) the identification of educational goals (including needs analysis); B) analysis/determination of what must be learned (task analysis); C) delivery/designing instructional systems (designing instruction, media selection, instructional delivery); and D) readiness/evaluation of student behavior and course effectiveness (developmental stages and readiness, evaluation of instructional programs). With regard to graduate training in educational psychology, Scandura et al., suggest that there is a wide variation in the quality of training programs, although there seems to be common core areas offered; these specific areas will be discussed later. Lastly, a number of promising advances in educational psychology were discussed by Scandura et al. (1978). Areas such as cognitive information processing, particularly as it applies to education, and artificial intelligence and models of complex human performance and instruction are cited as the most promising research areas of the future for educational psychology.

On an applied level, several authors have discussed various competencies which need to be exhibited by the educational psychologist. First, graduates of educational psychology programs should be able to interact successfully with professional educators (Brenner, 1979; Maggs & White, 1982); this ability is particularly important because many research projects arise from problems encountered in educational practices in the schools (Brenner, 1979; Thompson & Lindsay, 1982). Also, because academic openings for educational psychologists are few, skills in testing, evaluation and assessment, and school psychology are beneficial (Scandura et al.).

With respect to the graduate curriculum in educational psychology, several authors have examined the major areas of training and research represented (Anastasi, 1979; Brammer, 1967; Scandura et al., 1978). In general terms, there appears to be a relative consensus as to the major components of graduate training in educational psychology. First, training in research design, statistics, and educational measurement and test development is considered to be an integral part of educational psychology (Albino, 1980; Anastasi, 1979); in fact, methodology and statistics courses are integral parts of both educational psychology and experimental psychology graduate programs (Edwards, 1981). Additionally, training in the area of applied learning is important (Brammer, 1967; Dick, 1978). More specifically, educational psychology is oriented toward the improvement of instructional methods through the utilization of psychological research (Charles, 1980). Last, training in human development is considered to be an important part of an educational psychology curriculum (Anastasi; Dick; Scandura et al.).

There have been, however, other proposals regarding the content of an educational psychology curriculum. For example, Brammer (1967) indicates that educational psychologists should be active in relating the findings of a number of disciplines, including psychology,

sociology, anthropology, and educational technology to the improvement of instructional methods; at least some training in basic human sciences is necessary (Brammer, 1967). Also, some education in the basic sciences, such as genetics, is necessary for conducting research in areas such as intelligence and intelligence testing methods, and reading achievement and reading disability (Morton, 1974).

Integrating Graduate Instruction in the Two Programs

Because of the relative youth of instructional design as a discipline, individuals working as instructional designers reflect a variety of training backgrounds (Briggs, 1982). Among the more traditional disciplines in which instructional designers have been trained are psychology and educational psychology (Briggs, 1982). Because many persons who ultimately will function as instructional designers will continue to come from educational psychology programs, Dick (1978) has proposed changes for graduate education in educational psychology to further enable graduate students to acquire instructional design skills.

Dick has proposed the integration of specific courses and experiences in instructional design into the framework of the traditional educational psychology graduate curriculum. For example, students would be taught skills in needs assessment and instructional analysis, testing and evaluation, development of instructional strategies, and evaluation of entry skills and behaviors in addition to foundations of learning, human development, and statistics. Many of these topics would generally be considered to be components of a graduate program in instructional design (Doughty & Durzo, 1981). Additionally, Dick proposed that educational psychology graduate students should have internship experiences in areas such as teacher education centers, instructional development centers, or medical education programs; the incorporation of field experiences into the graduate curriculum has been proposed to be a desirable experience (Bass & Duncan, 1981-82). Thus, Dick has proposed that the training of various instructional design topics be fully integrated into the educational psychology graduate curriculum; however, he presents no data indicating the extent to which instructional design courses and field experiences are currently being taught in educational psychology programs.

Others have also proposed that instructional design should be incorporated into educational psychology programs (Anastasi, 1979). Anastasi indicates that instructional design can be considered as a component of the larger field of instructional psychology; the purpose of instructional design is to bridge the gap which exists between experimental learning psychology and curriculum development. The result of research in instructional psychology is improved educational technology, including programmed learning material, media usage, and computer-assisted instruction. In other words, Anastasi maintains that instructional design should already exist as a component of the curriculum in educational psychology while Dick feels that, because it

is currently absent in many programs, instructional design should be integrated into educational psychology graduate programs.

In a discussion of the various roles performed by educational psychologists in the health sciences, Albino (1980) suggests that teaching particular skills to graduate students in educational psychology will enhance their performance in a health sciences setting. Briefly, Albino indicates that additional training for educational psychology graduate students is necessary in the areas of consultation skills, program evaluation skills, test development and research design, and applications of learning theories. It has previously been noted that much of the foundation for training in program evaluation skills is available in psychology and educational psychology programs (Perloff, Perloff & Sussna, 1976; Wortman, Cordray & Reis, 1980). With respect to applications of learning theory, Albino emphasizes that experience in instructional design should be acquired by the educational psychology graduate student expecting to function in a health sciences setting; the ability to evaluate course structures or content and suggest alternatives is important. Additionally, a background in designing instruction for psychomotor and affective skills is important. Additionally, a background in designing instruction for psychomotor and affective skills is important, considering the large amount of time spent by health sciences students learning clinical skills. Lastly, Albino notes that educational psychology graduate programs provide little coursework or experience in developing consultation skills. As mentioned by Bratton (1979-80; 1981), interpersonal and consultation skills are also important for successful performance as an instructional developer. Patridge and Tennyson note that many of the instructional development programs surveyed in their study placed an emphasis upon the acquisition of the ability to manage problems and interact with personnel.

METHODS

Design

Within educational research, descriptive research is an essential tool for determining the present status of a variety of educational practices. In fact, descriptive research methods are required to answer questions which deal with current educational conditions (Hopkins, 1976), and can yield extremely useful results when properly employed (Asher, 1976; Burton, 1979). One of the major types of descriptive research is the status study; status studies are intended to provide information about an existing set of conditions or practices in the educational setting (Hopkins, 1976). Because the primary objective of this project was to investigate the relationships which exist between graduate education in educational psychology and instructional design, the use of descriptive research methodology was appropriate.

Subjects

As has been previously mentioned, program administrators

(chairpersons) of instructional design and technology programs at 22 institutions with doctoral programs in both areas were surveyed. surveyed. These institutions were:

Florida State University	University of Kentucky
Indiana University	University of Massachusetts
Iowa State University	University of Michigan
Michigan State University	University of Minnesota
New York University	University of Oklahoma
Pennsylvania State University	University of Oregon
Purdue University	University of Pittsburgh
Syracuse University	University of Tennessee
Temple University	University of Texas
University of Georgia	University of Virginia
University of Iowa	Wayne State University

Instrument Development

A questionnaire was used to collect data on how frequently graduate students study specific topics in both educational psychology and instructional design, and how frequently those topics were studied at three points in time: currently studied (1983-84 school year), studied five years ago (1978-79 school year), and projected to be studied five years in the future (1988-89 school year).

This list of topics was developed by examining graduate catalog course descriptions of approximately one-third of the programs which were studied in this project, as well as topical headings which appeared in instructional design and educational psychology textbooks. Individual topics were chosen over courses as the unit of measure because of the large differences often noted between course descriptions and actual course content. Approximately an equal number of topics from instructional design sources and educational psychology sources was identified.

Respondents were asked to include open-ended comments on what trends were foreseen for their programs over the next five years. Information was solicited about the contact between faculty in instructional design and educational psychology and whether or not those faculty interactions were expected to increase, decrease, or remain constant over the next five years. Finally, information was solicited regarding faculty training (year and institution of doctoral degree) and recent program graduates (name and year of degree completion).

The questionnaire was initially pilot-tested by mailing it to six departmental chairpersons, three instructional design and three educational psychology, who were not at institutions included in the study. Responses were received from three of these individuals (50%). All questionnaires were completed correctly and no major changes were made before the study was initiated.

Procedures

The questionnaire was mailed with a self-addressed post-paid return envelope to chairpersons of the instructional design programs and educational psychology programs. Approximately eight weeks after the initial mailing, non-respondents were telephoned and subsequently sent a second questionnaire. At this point, chairpersons who were on sabbatical or unavailable for other reasons were identified and the questionnaires were sent to the acting chairperson. As questionnaires were received, the data were entered into a computer file for analysis.

Data Analysis

Responses on the section of the questionnaire dealing with curriculum topics were coded using a four-point scale: none=1, some=2, most=3, all=4. Means were then calculated for each topic at each point in time studied. Educational psychology programs were compared with instructional design programs on the extent to which students studied various topics at three points in time. The comparisons were made using t-tests for each topic at each of the three points in time.

In order to objectively categorize topics as either instructional design or educational psychology topics, factor analysis was used. Factor analysis is a statistical technique which allows the experimenter to examine underlying dimensions for a particular data set (Kim & Mueller, 1978). One major use of factor analysis is confirmatory; a smaller number of factors are identified which account for the covariation in a given data set. The experimenter can specify the number of factors which will be formed. In this case, two factors were used; one factor represented instructional design topics and the second factor consisted of educational psychology topics. A varimax rotation was used to simplify the factor structure. The information derived from this procedure consists of each topic and an associated factor loading for each of the two factors. A factor loading for a variable represents the correlation between that variable and the factor (Kleinbaum & Kupper, 1978). Thus, the higher positive factor loading indicates to which factor a given topic is attributed.

Topics were assigned to one of the two factors using the above procedure. A topic was assigned to the factor for which there was a higher positive factor loading. After topics were classified as being either instructional design or educational psychology topics using the above procedure, topics which were noted to exhibit high growth were analyzed to determine if either educational psychology programs or instructional design programs showed a disproportionate number of high growth topics from the other area (using means obtained using the four-point scale described previously, curriculum topics which exhibited an increase of .50 between figures for the 1978-79 school year and projections for the 1988-89 school year). Chi-square analysis was used to test for significance.

Response Rate

Questionnaires were sent to 44 individuals; 22 chairpersons of educational psychology programs and 22 chairpersons of instructional design programs. However, the chairperson of the educational psychology program at one university indicated that, contrary to original information, there was not an instructional design program at that institution. Consequently, a final sample size of 42 was used. An overall response rate of 27/42 (64.3%) was obtained. For instructional design chairpersons, 14 of 21 (66.7%) completed questionnaires while 13 of 21 (61.9%) educational psychology chairpersons completed questionnaires. One additional questionnaire was returned by an educational psychology chairperson who indicated that he was unable to understand the directions. One instructional design chairperson did not complete the first section of the questionnaire relating to student study of various curriculum topics, but did complete the other parts of the questionnaire. Also, the chairperson of one educational psychology program responded; however, he indicated that his program was being terminated due to a lack of graduate students and he was unable to complete the first section of the questionnaire. All other returned questionnaires were usable and substantially complete.

Program Comparisons

Of the two questions investigated in this study, the first three involved program comparisons and are presented in this section. First, changes in the extent to which curriculum topics are studied in each program have changed over time were examined. Second, an examination was made of the directionality of any changes.

The first question to be addressed in this section is the extent to which curriculum topics studied in each program have changed over time. Comparisons were made between programs for each curriculum topic at each of three points in time. A number of changes were noted in the number of students studying specific topics at each of the three points in time examined. These figures are presented in Table 1. The means presented in Table 1 were obtained using the four-point scale described earlier (none=1, some=2, most=3, all=4). Of the 72 curriculum topics examined in this study, 30 (42%) showed no significant differences between educational psychology and instructional design programs at any of the three points in time examined. For the remaining 41 topics, several interesting patterns were noted. For example, achievement motivation was reported to be studied by significantly more educational psychology students than instructional design students five years ago (Table 1). Subsequently, the number of educational psychology students studying achievement motivation remained constant while a large number of instructional design students began to study the topic and eliminated any significant differences between the two groups for the current school year or five years in the future. Similarly, significantly more educational psychology students studied adolescent development five years ago and during the current school year.

However, the number of educational psychology students studying adolescent development is reported to be decreasing while the number of instructional design students studying it is increasing, producing no significant difference between the two programs for the 1988-89 school year.

Another interesting pattern was noted for computer-assisted instruction and interactive video. No differences were found between students in educational psychology and instructional design programs for the 1978-79 school year for either topic. The number of instructional design students reported to study these topics increased for the 1983-84 school year and were projected to increase more by the 1988-89 school year. The number of educational psychology students reported to study these topics also increased, although at much slower rates, producing significant differences between educational psychology and instructional design programs for the 1983-84 and the 1988-89 school years.

A similar trend was noted for program evaluation and consultation skills. Although these topics were to be more frequently studied at each point in time by instructional design students, no significant difference was found between programs for either topic during the 1978-79 school year. However, significantly more instructional design students were reported to take each topic during both the 1978-79 school year and projected for the 1988-89 school year.

Many topics studied by significantly larger numbers of instructional design students at each of the three points in time were related to media production: audio/slide production, graphics production, media center administration, media selection and use, photography production, telecommunications, transparency production, and videotape/TV production. A second set of topics which were studied by significantly more instructional design students was related to instructional delivery and evaluation. These topics include curriculum development, design of instruction, formative evaluation, individualized instruction, instructional evaluation, instructional objectives, instructional strategies, needs assessment, sequencing instruction, summative evaluation, systems concepts, task/content analysis, and teaching methods.

In contrast, relatively few topics were studied by significantly more educational psychology students at each point in time. These topics were generally related to human development: language development, self-concept determinants, and sex role development.

In addition to the differences between educational psychology and instructional design programs discussed above, a number of similarities were also found. Referring again to Table 1, it can be seen that one of the major similarities found between the two programs was the number of students studying statistics and measurement topics. For example, chairpersons of both programs indicated that a substantial number of students currently studied analysis of variance/covariance, correlation, descriptive statistics, inferential statistics,

standardized tests, and test reliability/validity. Similarly, research topics such as experimental research methodology and research design were indicated to be frequently studied by students in both programs. Topics which were indicated to be studied less often but at approximately equal levels by students in each program included factor analysis, naturalistic research methodology, nonparametric statistics, criterion-referenced testing, norm-referenced testing, and standardized tests. The only statistics topic for which a large difference between the two programs was found was multiple regression; significantly more educational psychology students study it than do instructional design students. Additionally, the respondents indicated that this difference would grow even larger in the future. Educational psychology chairpersons indicated that more of their students would study multiple regression in the future while instructional design chairpersons felt that the same number of their students would study this topic in the future. Finally, a measurement topic, latent trait theory, was studied by relatively few students in either program.

A second question addressed in this study was the issue of directionality of change. In order to determine whether instructional design is incorporating components of the educational psychology curriculum or if educational psychology is incorporating components of the instructional design curriculum, several factors were examined. These factors include curriculum topics, student dissertation research, faculty dissertation research, and contact between faculty in the two disciplines.

Considering curriculum topics, it will be recalled that one of the methods used to characterize instructional design and educational psychology programs was factor analysis. Two factors were used in the factor analysis procedure. It will be recalled that topics were assigned to one of the two disciplines on the basis of the factor analysis procedure; curriculum topics were assigned to the factor for which they exhibited the highest positive factor loading. In general, computer assignment of the topics placed them in the factors as was expected. Each topic was then examined in order to note whether or not a disproportionate number of "instructional design" topics were exhibiting growth in educational psychology programs. Similarly, "educational psychology" topics were examined as to whether or not they were exhibiting growth in instructional design programs.

"High growth" was defined as a gain of .50 or more for the mean score between the 1978-79 school year and projected figures for the 1988-89 school year (using the four-point scale previously described and presented in Table 1). Using this criteria for growth, 33% of the high growth topics in instructional design programs were topics which had been classified as "educational psychology" topics by the factor analysis procedure. In contrast, 75% of the high growth topics in educational psychology programs were "instructional design" topics, this being a significant difference (chi-squares=5.00, df=1, $p<.05$). When the criteria for defining a high growth topic was changed to a gain of .70 or more for the mean score between the 1978-79 school year and projected figures for the 1988-89 school year, 25% of the high

growth topics in instructional design programs were "educational psychology" topics; 75% were "instructional design" topics (chi-square=3.20, df=1, $p<.08$). Although overall significance was lost (probably due to smaller sample sizes due to more stringent inclusion criteria), the general trend of educational psychology programs showing a large proportion of high growth topics which are "instructional design" topics remained consistent.

A second measure of the extent to which educational psychology and instructional design programs may be merging was the type of contact which occurs between faculty in the two programs. The extent of faculty contacts at institutions where chairpersons in both programs responded (N=9) is presented in Table 3. The most frequent activities reported by the chairpersons which involve contact between faculty in the two programs were dissertation committees and faculty committees. Activities which involve little contact include team-teaching courses, joint program administration, and collaborative research and publication. Finally, all chairpersons indicated that these interactions have either increased or remained constant over the past five years. The respondents were evenly divided, however, as to whether or not they anticipate those faculty interactions will increase over the next five years.

These findings suggest that the two disciplines are indeed moving closer to one another, with educational psychology programs incorporating more topics from instructional design programs.

Despite the finding that topics from the instructional design curriculum are being introduced into educational psychology programs, the results of this study suggest that a merging of the two areas has not occurred on the level of research activity. Student dissertation research was found to be conducted in areas specific to each discipline.

The same trend was true for cooperative faculty research. Chairpersons of both programs indicated that relatively few faculty engage in collaborative research or publishing with faculty from the other discipline.

With respect to other measures of contact between faculty in the two programs, high levels of joint faculty participation on dissertation committees and comprehensive exam committees suggests cooperation between the two disciplines. Additionally, all of the respondents felt that contact between faculty in these two areas had increased or remained constant over the past five years. There was no clear trend, however, as to whether or not those faculty interactions would continue to increase over the next five years.

DISCUSSION

The primary purpose of this study was to investigate the

relationships which exist between graduate education in educational psychology and instructional design. The study assessed the extent to which instructional design topics were studied in educational psychology doctoral programs; this study also assessed the extent to which doctoral students in educational technology study educational psychology topics in their curriculum at institutions which have doctoral programs in both areas. The study also determined if specific curriculum topics in the two disciplines had changed over time, using five years ago (1978-79 school year), currently (1983-84 school year), and projections for five years in the future (1988-89) as the points in time. Finally, types of interactions between faculty in the two programs were examined.

It should be pointed out that the present study has several limitations. One limitation was that the findings are not necessarily generalizable to all instructional design and educational psychology doctoral programs. Because specific types of programs which were at institutions with programs in both areas were studied, the results may not be generalizable. A second limitation of this study is that projections were used. Consequently, these figures are not as accurate as would be the case with actual observations.

Relationships Between Programs

Two of the major questions examined on this study were: first, are instructional design and educational psychology programs in transition relative to one another and, second, what are the directions of those changes. The findings of this study suggest that educational psychology and instructional design are indeed changing relative to each other. It is also evident that those changes are occurring in an uneven fashion. For example, many of the topics which were indicated to be rapidly growing in the educational psychology curriculum were instructional design topics, suggesting a merging of the disciplines. Conversely, however, relatively few of the high growth topics in instructional design graduate programs were educational psychology topics. These findings suggest that the two disciplines are indeed moving closer to one another, with educational psychology programs incorporating more topics from instructional design programs.

Despite the finding that topics from the instructional design curriculum are being introduced into educational psychology programs, the results of this study suggest that a merging of the two areas has not occurred on the level of research activity. Chairpersons of both programs indicated that relatively few faculty in either program engage in collaborative research or publication with faculty from the other discipline.

With respect to other measures of contact between faculty in the two programs, high levels of joint faculty participation on dissertation committees and comprehensive exam committees suggests cooperation between the two disciplines. Additionally, all of the respondents felt that contact between faculty in the two areas had

increased or remained constant over the past five years. There was no clear trend, however, as to whether or not those faculty interactions would continue to increase over the next five years.

Because respondents provided unclear projections as to whether or not these transitions might continue, it is possible that other factors might be involved in the transition process. For example, future curriculum changes might possibly be more influenced by institutional factors rather than national trends. Thus, the two programs may continue to grow closer at some institutions while remaining quite distinct from one another at other institutions.

Future Research

One topic for future research in this area might involve determining qualitative characteristics of student contact with a given subject area. For example, the present study assessed how many students studied particular topics at some point in their coursework; no measure was made of the extent of exposure to a given topic. By obtaining data regarding the number of student contact hours in a given area, a more accurate profile of major areas of curriculum emphasis within a type of program can be derived. Consequently, a study which examines topics in greater detail would provide an assessment of the extent to which topics are studied rather than an assessment of how many students are exposed to a given topic as was the case in this study.

A second project that would provide additional information would be a study of specific topics in a graduate curriculum. Such a project could be done using methods similar to this study. Rather than sampling a large number of topics as was done in this study, a small content area could be examined. For example, rather than identifying computer-assisted instruction as one of many topics, the research could focus on CAI as the only topic to be studied. This topic could then be divided into smaller topics such as artificial intelligence, expert systems, evaluation, simulations, and games. In this fashion, it would be possible to identify programs which are providing doctoral students with exposure to the most current topics. Open-ended responses should provide insight into the reasons for program differences; in the CAI example, possible reasons might include students with better computer science backgrounds, hardware availability, or other reasons. A project of this type would allow the researcher to study trends in smaller components of specific graduate programs in a detailed manner.

Another future research project would consist of replicating this study during the 1988-89 academic year. Responses given at that time could be compared to the findings reported in this study. Open-ended responses could be requested to investigate possible reasons for the differences between projections in the current study and findings for the future follow-up study. Such a follow-up study would allow the investigator to determine whether the instructional design topics that are being integrated into the educational psychology curriculum will

lead to future dissertation research in those areas. Also, it would be possible to note if collaborative research and publication by faculty in the two programs were increasing.

Another approach to examining the trends noted in this study would be to conduct a future study using the Delphi technique. Briefly, the Delphi technique is a procedure used for forecasting trends. By distributing a series of questionnaires to experts is a particular field, responses can be modified by each individual after having evaluated the responses of the group for the previous round of questionnaires (Amidon, 1977). Opinions can be reviewed throughout the process and, by the final questionnaire, concensus and minority opinions can be developed. Such a procedure might be used to allow chairpersons of instructional design and educational psychology programs to amplify on what trends they anticipate for their programs. Opinions could be developed for the future of each discipline individually as well as for future interactions between the two disciplines.

Summary

The results of this study indicate that instructional design programs and educational psychology programs are in transition. However, these changes appear to be occurring at an instructional level. Topics from each program are being introduced into course content in the other discipline. Merging at the level of dissertation research and collaborative faculty research, however, has not taken place.

There was no clear indication as to whether or not these trends would continue. Future research can determine if the two programs will continue to move toward each other and, if that is the case, in what respects they might merge.

REFERENCES

Albino, J.E. (1980). Educational psychologists in the health sciences: current roles and training needs. Educational Psychologist, 15, 125-133.

American Psychological Association (1981). Graduate study in Psychology, 1982-83. Washington, D.C.

Amidon, R.J. (1977). The applicability of the Delphi Technique as a method of establishing organizational goals on a federal training agency. Unpublished Doctoral Dissertation, University of Iowa.

Anastasi, A. (1979). Fields of applied psychology. New York: McGraw-Hill.

Asher, J.W. (1976). Educational research and evaluation methods. Boston: Little, Brown.

Bass, R.K. & Duncan, M.W. (1981-82). Guided field experience: a must for instructional developer preparation. Journal of Instructional Development, 5, 23-25.

Bower, G.B. & Hilgard, E.R. (1981). Theories of Learning (5th Ed.). Englewood Cliffs, N.J.: Prentice-Hall.

Brammer, L.M. (1967). Educational psychology: progress and challenge. College of Education Record (University of Washington), 33, 35-37.

Bratton, B. (1979-80). The instructional development specialist as consultant. Journal of Instructional Development, 3, 2-8.

Bratton, B. (1981). Training the instructional development specialist to work in unfamiliar content areas. Journal of Instructional Development, 4, 21-23.

Brenner, K.W. (1979). Toward a more productive role for educational psychology. Psychology, 16, 49-51.

Briggs, L.J. (1982). Instructional design: present strengths and limitations, and a view of the future. Educational Technology, 12, (10), 18-23.

Burton, N.W. (1979). Assessment as exploratory research: a theoretical overview. Educational Technology, 9, (12), 5-11.

Charles, D.C. (1980). Duration of innovation in educational psychology. Educational Psychologist, 15, 159-163.

Dick, W. (1978). The educational psychologist as instructional designer. Contemporary Educational Psychology, 3, 265-271.

Doughty, P. & Durzo, J.J. (1981). Redesign of a graduate program in instructional design, development, and evaluation (IDDE). Journal of Instructional Development, 4, 14-20.

Edwards, J.D. (1981). A conceptual framework for a core program in psychology. Teaching of Psychology, 8, 3-7.

Eldridge, W.D. (1982). Traditional academic programs for human services professions: poor experiential training in self-evaluation and accountability. Performance and Instruction, 11, (8), 26-28.

EMY Staff. (1983). Doctoral programs in instructional technology. In J.W. Brown & S.N. Brown (Eds.), Educational Media Yearbook. Littleton, CO: Libraries Unlimited, Inc.

Glaser, R. (1982). Instructional psychology: past, present, and future. American Psychologist, 37, 292-305.

Grabowski, S.M. Trends in graduate research. In, H.B. Long & R. Heimstra, (Eds.), Changing Approaches to Studying Adult Education. San Francisco, CA: Jossey-Bass Publishers.

Grabowski, S.M. & Loague, N. (1970). Adult Education Dissertation Abstracts, 1968-1969. Washington, D.C.: Adult Education Association of the U.S.A.

Hopkins, C.D. (1976). Educational research: a structure for inquiry. Columbus, OH: Merrill.

House, J.D. (1985). An evaluation of longitudinal curriculum changes in Instructional Design and Educational Psychology doctoral programs. Unpublished doctoral dissertation, University of Iowa, Iowa City.

Kim, J. & Mueller, C.W. (1978). Factor analysis: statistical methods and practical issues. Beverly Hills, CA: Sage Publications.

Kleinbaum, D.G. & Kupper, L.L. (1978). Applied regression analysis and other multivariable methods. Belmont, CA: Wadsworth Publishing Co.

Maggs, A. & White, R. (1982). The educational psychologist: facing a new era. Psychology in the Schools, 19, 129-134.

Morton, N.E. (1974). Analysis of family resemblance: I. Introduction. American Journal of Human Genetics, 26, 318-330.

Patridge, M.I. & Tennyson, R.D. (1978-79). Graduate education in instructional systems: a review of selected programs. Journal of Instructional Development, 2, 18-26.

Perloff, R., Perloff, E., & Sussna, E. (1976). Program evaluation.

In M.R. Rosenzweig and L.W. Porter (Eds.), Annual Review of Psychology. Palo Alto, CA: Annual Reviews, Inc., 569-594.

Reiser, R.A. (1982). Improving the research skills of instructional designers. Educational Technology, 12, (12), 19-21.

Romiszowski, A.J. (1981). Designing Instructional Systems. New York: Nichols.

Scandura, J.M., Frase, L.T., Gagne, R., Stolurow, K., Stolurow, L., & Groen, G. (1978). Current status and future directions of educational psychology as a discipline. Educational Psychologist, 13, 43-56.

Silber, K.H. (1981). Applying Piaget's stages of intellectual development and Guilford's structure of intellect model to training instructional developers. Journal of Instructional Development, 4, 33-40.

Silber, K.H. (1982). An analysis of university training programs for instructional developers. Journal of Instructional Development, 6, 15-28.

Spurr, S.H. (1970). Academic degree structures: innovative approaches. New York: McGraw-Hill, 1970.

Task Force on ID Certification (1981). Competencies for the instructional/training development professional. Journal of Instructional Development, 5, 14-15.

Thompson, D. & Lindsay, G. (1982). Professional development of educational psychologists. Bulletin of the British Psychological Society, 35, 275-277.

Wortman, P.M., Cordray, D.S., & Reis, J. (1980). Training for evaluation research: some issues. In L. Sechrest (Ed.), New Directions for Program Evaluation: Training Program Evaluators. San Francisco: Jossey-Bass.

Table 1

Comparisons Between Groups, Instructional Design (ID) and Educational Psychology (EP), At Three Points In Time

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Achievement Motivation	1978-79	1.89	.60	2.82	.87	.0145
	1983-84	2.30	.82	2.83	.83	NS
	1988-89	2.75	.89	2.83	.83	NS
Adolescent Development	1978-79	1.55	.69	2.91	.70	.0002
	1983-84	1.83	.94	2.67	.78	.0270
	1988-89	2.00	.94	2.58	.90	NS
Adult Development	1978-79	2.17	.83	2.27	.79	NS
	1983-84	2.54	.88	2.64	.81	NS
	1988-89	2.92	.90	2.91	.70	NS
Affective Measurement	1978-79	2.20	.42	2.18	.75	NS
	1983-84	2.80	.42	2.25	.75	NS
	1988-89	3.10	.74	2.33	.89	.0419
ANOVA/ANCOVA	1978-79	3.73	.90	3.64	.50	NS
	1983-84	3.75	.87	3.75	.45	NS
	1988-89	3.64	.92	3.75	.45	NS
Aptitude Tests	1978-79	2.60	.97	2.82	.75	NS
	1983-84	3.09	.83	2.92	.79	NS
	1988-89	3.30	.67	2.83	.94	NS
Attribution Theory	1978-79	1.88	.83	2.09	.54	NS
	1983-84	2.33	.50	2.75	.45	NS
	1988-89	2.38	.52	2.75	.62	NS
Audio/Slide Production	1978-79	3.31	.75	1.27	.47	.0001
	1983-84	3.08	.86	1.42	.51	.0001
	1988-89	3.00	1.04	1.58	.67	.0007
Classroom Management	1978-79	1.90	.57	2.36	.50	NS
	1983-84	2.00	.63	2.50	.52	NS
	1988-89	2.00	.67	2.50	.52	NS
Cognitive Development	1978-79	2.82	.75	3.36	.67	NS
	1983-84	3.09	.83	3.67	.65	NS
	1988-89	3.36	.81	3.67	.65	NS

Table 1 (Continued)

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Computer-Assisted Instruction	1978-79	2.23	.93	1.82	.87	NS
	1983-84	3.23	.60	2.42	.79	.0079
	1988-89	3.92	.28	2.83	.83	.0002
Computer Data Analysis	1978-79	2.42	.79	2.64	.81	NS
	1983-84	3.00	.58	3.50	.52	.0333
	1988-89	3.33	.78	3.75	.45	NS
Consultation Skills	1978-79	2.33	1.15	1.82	.40	NS
	1983-84	2.92	.79	2.00	.43	.0019
	1988-89	3.25	.75	2.33	.65	.0043
Correlation	1978-79	3.60	.52	3.55	.52	NS
	1983-84	3.55	.69	3.75	.45	NS
	1988-89	3.64	.50	3.75	.45	NS
Creativity	1978-79	2.30	.95	2.27	.47	NS
	1983-84	2.27	.90	2.33	.49	NS
	1988-89	2.64	.92	2.17	.72	NS
Criterion-Referenced Testing	1978-79	3.45	.82	2.45	.69	.0057
	1983-84	3.50	.67	2.92	.79	NS
	1988-89	3.58	.67	3.08	.90	NS
Curriculum Development	1978-79	3.15	.99	2.09	.70	.0068
	1983-84	3.15	.99	2.08	.67	.0045
	1988-89	3.25	.97	2.08	.67	.0023
Descriptive Statistics	1978-79	3.55	.82	3.73	.65	NS
	1983-84	3.42	.90	3.83	.39	NS
	1988-89	3.55	.82	3.83	.39	NS
Design Of Instruction	1978-79	3.85	.38	1.91	.54	.0001
	1983-84	4.00	.00	2.25	.62	.0001
	1988-89	4.00	.00	2.25	.62	.0001
Early School Experiences	1978-79	1.73	.65	2.18	.40	NS
	1983-84	1.75	.45	2.25	.62	.0345
	1988-89	1.64	.50	2.33	.49	.0030
Experimental Research Methodology	1978-79	3.50	.67	3.82	.40	NS
	1983-84	3.75	.62	3.83	.39	NS
	1988-89	3.75	.62	3.92	.29	NS

Table 1 (Continued)

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Exploratory Data Analysis	1978-79	2.50	.85	2.64	.92	NS
	1983-84	2.82	.87	3.00	.95	NS
	1988-89	2.90	.99	3.08	.90	NS
Factor Analysis	1978-79	2.33	1.00	2.36	.67	NS
	1983-84	2.50	.85	2.50	.80	NS
	1988-89	2.80	.92	2.67	.89	NS
Film Production	1978-79	2.00	.89	1.18	.40	.0153
	1983-84	1.83	1.03	1.33	.49	NS
	1988-89	1.82	1.17	1.25	.45	NS
Formative Evaluation	1978-79	3.73	.65	2.09	.70	.0001
	1983-84	3.67	.65	2.25	.75	.0001
	1988-89	3.73	.65	2.33	.78	.0001
Graphics Production	1978-79	3.00	.91	1.36	.67	.0001
	1983-84	2.77	1.01	1.42	.67	.0001
	1988-89	2.64	1.03	1.42	.67	.0001
Individual Differences	1978-79	3.33	.71	2.91	.83	NS
	1983-84	3.40	.70	3.08	.90	NS
	1988-89	3.44	.73	3.08	.90	NS
Individualized Instruction	1978-79	3.45	.69	2.27	.47	.0001
	1983-84	3.50	.67	2.50	.52	.0005
	1988-89	3.67	.65	2.58	.67	.0006
Inferential Statistics	1978-79	3.50	.90	3.73	.65	NS
	1983-84	3.69	.63	3.75	.62	NS
	1988-89	3.58	.67	3.75	.62	NS
Information Processing	1978-79	2.25	.75	2.45	.69	NS
	1983-84	2.83	.72	3.00	.74	NS
	1988-89	3.00	.77	3.08	.79	NS
Instructional Evaluation	1978-79	3.58	.67	2.36	.81	.0007
	1983-84	3.85	.38	2.50	.80	.0001
	1988-89	3.83	.39	2.75	.75	.0004
Instructional Objectives	1978-79	4.00	.00	2.45	.82	.0001
	1983-84	4.00	.00	2.58	.90	.0004
	1988-89	4.00	.00	2.75	.87	.0001

Table 1 (Continued)

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Instructional Strategies	1978-79	3.64	.67	2.09	.54	.0001
	1983-84	3.83	.39	2.25	.62	.0001
	1988-89	3.91	.30	2.50	.67	.0015
Instructional Theory	1978-79	3.42	.90	2.09	.83	.0002
	1983-84	3.62	.65	2.33	.78	.0002
	1988-89	3.55	.69	2.83	.94	NS
Interactive Video	1978-79	1.25	.45	1.27	.47	NS
	1983-84	2.00	.43	1.50	.52	.0175
	1988-89	2.82	.60	2.00	.74	.0087
Intrinsic/ Extrinsic Motivation	1978-79	2.45	1.04	2.64	.81	NS
	1983-84	2.67	1.07	3.00	.60	NS
	1988-89	2.92	1.08	2.92	.67	NS
Language Development	1978-79	1.73	.90	2.45	.52	.0317
	1983-84	1.83	.83	2.58	.51	.0147
	1988-89	1.91	.83	2.58	.51	.0279
Latent Trait Theory	1978-89	1.45	.69	1.64	.67	NS
	1983-84	1.58	.67	1.92	.51	NS
	1988-89	1.64	.67	2.08	.51	NS
Media Center Administration	1978-79	2.58	.90	1.00	.00	.0001
	1983-84	2.38	.87	1.00	.00	.0001
	1988-89	2.33	.89	1.08	.29	0004
Media Selection and Use	1978-79	3.69	.63	1.36	.50	.0001
	1983-84	3.69	.63	1.33	.49	.0001
	1988-89	3.73	.65	1.50	.52	.0001
Memory/ Forgetting	1978-79	2.92	1.08	2.91	.83	NS
	1983-84	3.17	.83	3.17	.83	NS
	1988-89	3.27	.90	3.17	.83	NS
Meta-analysis	1978-79	1.42	.51	1.91	.94	NS
	1983-84	2.17	.58	2.17	.83	NS
	1988-89	2.27	.65	2.75	.75	NS
Multiple Regression	1978-79	2.27	.90	3.00	.77	NS
	1983-84	2.58	.90	3.25	.62	.0464
	1988-89	2.55	.93	3.42	.51	.0107

Table 1 (Continued)

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Naturalistic Research Methodology	1978-79	1.64	.50	2.36	.81	.0199
	1983-84	2.67	.78	2.42	.67	NS
	1988-89	2.91	.94	2.50	.90	NS
Needs Assessment	1978-79	2.83	1.03	2.09	.30	.0328
	1983-84	3.50	.67	2.00	.43	.0001
	1988-89	3.75	.45	2.00	.43	.0001
Nonparametric Statistics	1978-79	2.50	1.08	2.55	.82	NS
	1983-84	2.73	.90	2.83	1.03	NS
	1988-89	2.91	.94	2.92	.90	NS
Norm-Referenced Testing	1978-79	3.18	.87	2.82	.75	NS
	1983-84	3.17	.83	3.00	.85	NS
	1988-89	3.18	.87	2.92	.79	NS
Peer Relationships	1978-79	1.50	.53	2.45	.52	.0005
	1983-84	2.00	.77	2.50	.52	NS
	1988-89	2.10	.74	2.50	.52	NS
Personality Development	1978-79	1.91	.94	2.55	.52	NS
	1983-84	1.92	.90	2.67	.49	.0190
	1988-89	2.08	1.08	2.67	.49	NS
Photography Production	1978-79	2.85	.90	1.00	.00	.0001
	1983-84	2.69	.95	1.08	.29	.0001
	1988-89	2.67	1.07	1.17	.39	.0005
Principles of Learning	1978-79	3.75	.45	3.36	.81	NS
	1983-84	3.92	.29	3.58	.67	NS
	1988-89	3.91	.30	3.67	.65	NS
Problem-Solving Skills	1978-79	2.91	.94	2.55	.69	NS
	1983-84	3.18	.75	2.92	.67	NS
	1988-89	3.30	.67	2.92	.67	NS
Program Evaluation	1978-79	2.67	.98	2.09	.54	NS
	1983-84	3.08	.79	2.50	.52	.0448
	1988-89	3.36	.67	2.75	.62	.0337
Programmed Instruction	1978-79	2.75	.75	2.18	.40	.0375
	1983-84	2.83	.72	1.92	.67	.0038
	1988-89	2.55	1.04	1.92	.67	NS

Table 1 (Continued)

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Research Design	1978-79	3.83	.39	3.55	.69	NS
	1983-84	3.92	.29	3.75	.45	NS
	1988-89	3.91	.30	3.83	.39	NS
Roles of Heredity/ Environment	1978-79	2.42	1.08	3.18	.87	NS
	1983-84	2.42	1.08	3.08	.90	NS
	1988-89	2.45	1.13	3.08	.90	NS
Self-Concept Determinants	1978-79	1.73	.65	2.45	.52	.0088
	1983-84	1.73	.65	2.50	.52	.0047
	1988-89	1.70	.67	2.50	.52	.0052
Sequencing Instruction	1978-79	3.42	.67	1.91	.30	.0001
	1983-84	3.67	.65	1.92	.29	.0001
	1988-89	3.64	.67	1.92	.29	.0001
Sex Role Development	1978-79	1.42	.51	2.55	.69	.0002
	1983-84	1.58	.51	2.75	.62	.0001
	1988-89	1.73	.65	2.92	.79	.0008
Socio-Cultural Factors	1978-79	2.18	.87	2.55	.69	NS
	1983-84	2.27	.90	2.75	.62	NS
	1988-89	2.30	.82	2.92	.79	NS
Standardized Tests	1978-79	2.92	.90	3.18	.87	NS
	1983-84	2.83	1.03	3.33	.78	NS
	1988-89	3.00	1.00	3.33	.78	NS
Summative Evaluation	1978-79	3.38	.77	2.64	.92	.0413
	1983-84	3.62	.65	2.75	.87	.0093
	1988-89	3.83	.58	2.92	.90	.0071
Systems Concepts	1978-79	3.69	.63	2.00	.63	.0001
	1983-84	3.92	.28	2.17	.39	.0001
	1988-89	4.00	.00	2.17	.58	.0001
Task/Content Analysis	1978-79	3.33	.78	1.82	.60	.0001
	1983-84	3.92	.29	2.08	.51	.0001
	1988-89	4.00	.00	2.33	.78	.0001
Teaching Methods	1978-79	2.83	.94	2.00	.77	.0310
	1983-84	3.08	.95	2.17	.83	.0187
	1988-89	3.25	.97	2.42	.79	.0306

Table 1 (Continued)

Topic	Academic Year	ID Mean	SD	EP Mean	SD	p
Tele-communications	1978-79	2.67	.78	1.09	.30	.0001
	1983-84	3.08	.49	1.42	.79	.0001
	1988-89	3.17	.58	1.75	1.06	.0005
Test Item Writing	1978-79	2.82	.87	2.73	.90	NS
	1983-84	3.15	.80	2.75	.87	NS
	1988-89	3.25	.75	2.75	.97	NS
Test Reliability/ Validity	1978-79	3.18	.87	3.64	.67	NS
	1983-84	3.42	.67	3.67	.65	NS
	1988-89	3.64	.50	3.67	.65	NS
Transparency Production	1978-79	3.15	.90	1.36	.92	.0001
	1983-84	2.92	.86	1.33	.89	.0001
	1988-89	2.75	1.06	1.42	.90	.0031
Verbal Learning	1978-79	2.67	.98	2.82	.60	NS
	1983-84	2.67	.98	2.92	.79	NS
	1988-89	2.73	1.01	2.92	.79	NS
Videotape/TV Production	1978-79	2.92	.95	1.09	.30	.0001
	1983-84	2.92	.76	1.08	.29	.0001
	1988-89	2.83	.83	1.25	.45	.0001
Visual Learning	1978-79	2.83	.72	2.00	1.00	.0310
	1983-84	2.75	.87	2.08	.90	NS
	1988-89	2.92	.79	2.08	.90	.0250

Table 2

Responses for Measures of Contact Between the Two Programs for Nine Institutions With Both Chairpersons Responding

Contact Characteristic	ID	EP
Collaborative research/ publication	3 (33%)	2 (22%)
Comprehensive exam committees	5 (56%)	5 (56%)
Dissertation committees	9 (100%)	9 (100%)
Faculty committees	7 (78%)	7 (78%)
Joint faculty appointments	4 (44%)	2 (22%)
Joint program administration	2 (22%)	1 (11%)
Program located in same building	6 (67%)	3 (33%)
Team-teaching	2 (22%)	1 (11%)
Have these interactions increased or decreased in the past 5 years:		
Increased	3 (33%)	4 (44%)
No change	6 (67%)	5 (56%)
Decreased	0 (0%)	0 (0%)
Anticipate an increase in the next five years:		
Yes	4 (50%)	5 (56%)
No	4 (50%)	4 (44%)